



Spectral Gamma-Ray Borehole Log Data Report

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Borehole

11-02-10

Log Event A

Borehole Information

Farm : <u>AX</u>	Tank : <u>AX-102</u>	Site Number : <u>299-E25-111</u>
N-Coord : <u>41,644</u>	W-Coord : <u>47,519</u>	TOC Elevation : <u>680.00</u>
Water Level, ft :	Date Drilled : <u>2/28/1975</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>100</u>	

Borehole Notes:

According to the driller's records, this borehole was not perforated or grouted. The casing thickness is presumed to be 0.280 in., on the basis of published thickness for schedule-40, 6-in. steel tubing.

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>05/1996</u>	Calibration Reference : <u>GJPO-HAN-5</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>09/12/1996</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>99.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>56.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>
Log Run Number : <u>2</u>	Log Run Date : <u>09/13/1996</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>57.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>0.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>
Log Run Number : <u>3</u>	Log Run Date : <u>09/13/1996</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>60.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>42.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Borehole

11-02-10

Log Event A

Analysis Information

Analyst : S.D. Barry

Data Processing Reference : P-GJPO-1787

Analysis Date : 10/28/1996

Analysis Notes :

This borehole was logged in two log runs and one repeat run. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The only man-made radionuclide detected in this borehole was Cs-137. The presence of Cs-137 was measured almost continuously from the ground surface to about 15.5 ft and at 53.5 ft. The maximum Cs-137 concentration was 7.3 pCi/g at 1.5 ft.

The interval between 42.5 and 60 ft was relogged to verify the quality of the radionuclide concentration measurements made by the SGLS. The concentrations of KUT and Cs-137 were calculated using the separate data sets at overlapping depths. The measured concentrations of these radionuclides were within the statistical uncertainty of the measurements, indicating excellent repeatability of the measurements.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Reports for tanks AX-102 and AX-104.

Log Plot Notes:

Separate log plots show the man-made radionuclides (Cs-137, Co-60, and Eu-154) and the naturally occurring radionuclides (KUT). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL of a radionuclide, which represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

A plot of the rerun section from 42.5 to 60 ft is also provided. This plot shows the original and the rerun concentration determinations for K-40, U-238, and Th-232 for this depth region and also shows Cs-137 concentrations at 53.5 ft.